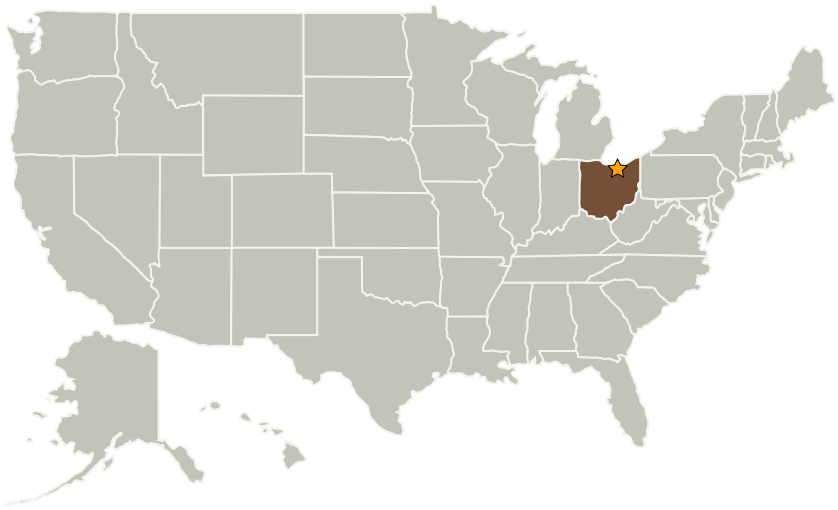
Physical Improvements in Exciter/Igniter Units, Phase II

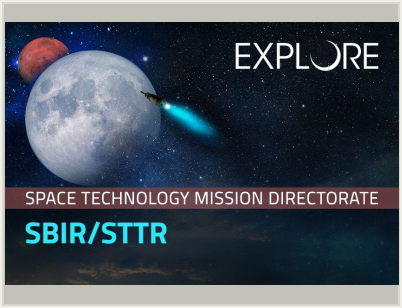
Completed Technology Project (2007 - 2009)

Project Introduction

The proposed Phase 2 project consists of the physical integration of our Phase 1 small, compact exciter with a "flight like" igniter or spark plug capable of hot-fire testing. The exciter/igniter unit will operate to a pre-established subset of expected flight performance requirements established and met in Phase 1. The exciter/igniter unit will physically integrate the exciter electronics with an igniter (spark plug) to demonstrate "end-to-end" functionality capable of providing ionizing voltage greater than 20 kV for a spark energy of 45 to 50 mJ at a rate of 200-300 sparks per second. The exciter is about half the weight and will occupy about half the volume of the current state-of-the-art exciters. The integrated exciter/igniter eliminates the problems associated with long HV cable runs; as long as long as 4 feet, and the potential for erroneous connections. The development of this integrated exciter/igniter unit will follow a phased approach covering design, development, analysis, assembly, test and verification. The implications of the proposed project are for space and weight savings in the overall development of green propulsion systems as applicable to research projects in Exploration Systems and specifically applicable to Topic X9 Propulsion and Propellant Storage.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Alphaport, Inc.	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Cleveland, Ohio

Primary U.S. Work Locations
Ohio

Project Transitions

November 2007: Project Start

November 2009: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.1 Integrated Systems and Ancillary Technologies